

FIGURE 1A

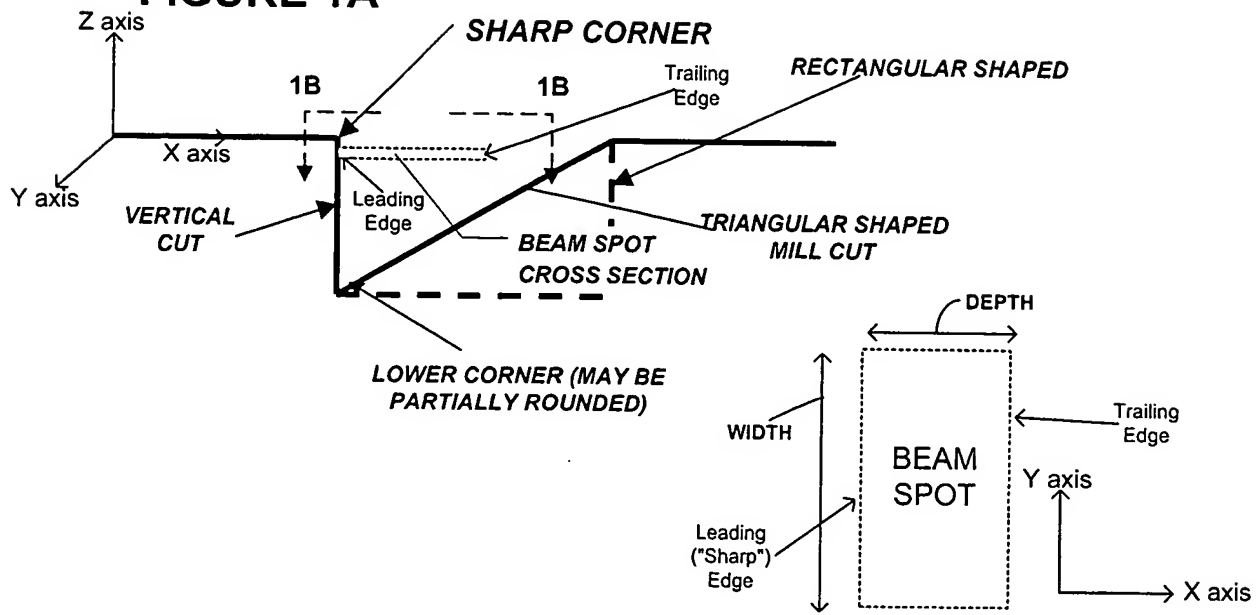


FIGURE 1B

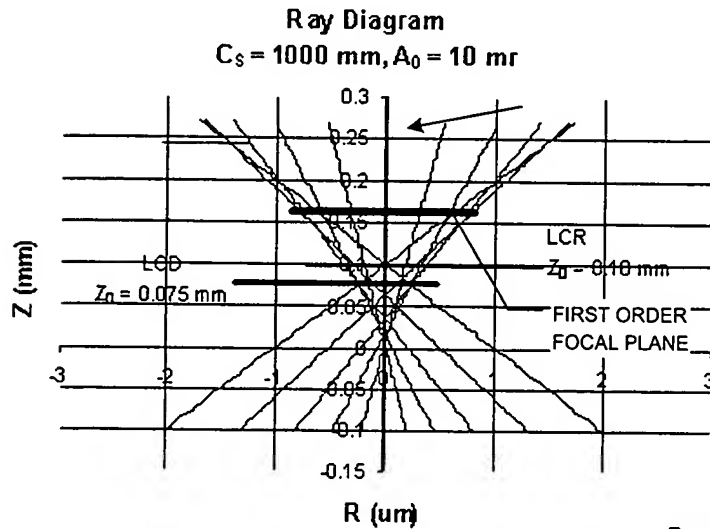
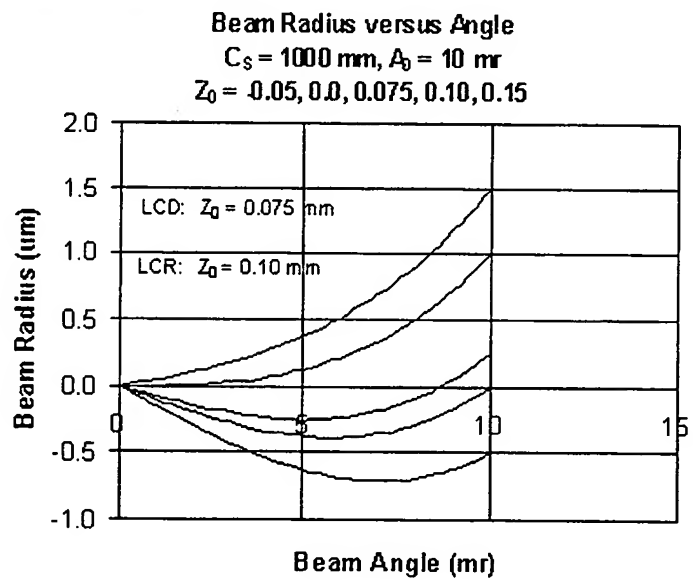


FIGURE 2A

FIGURE 2B



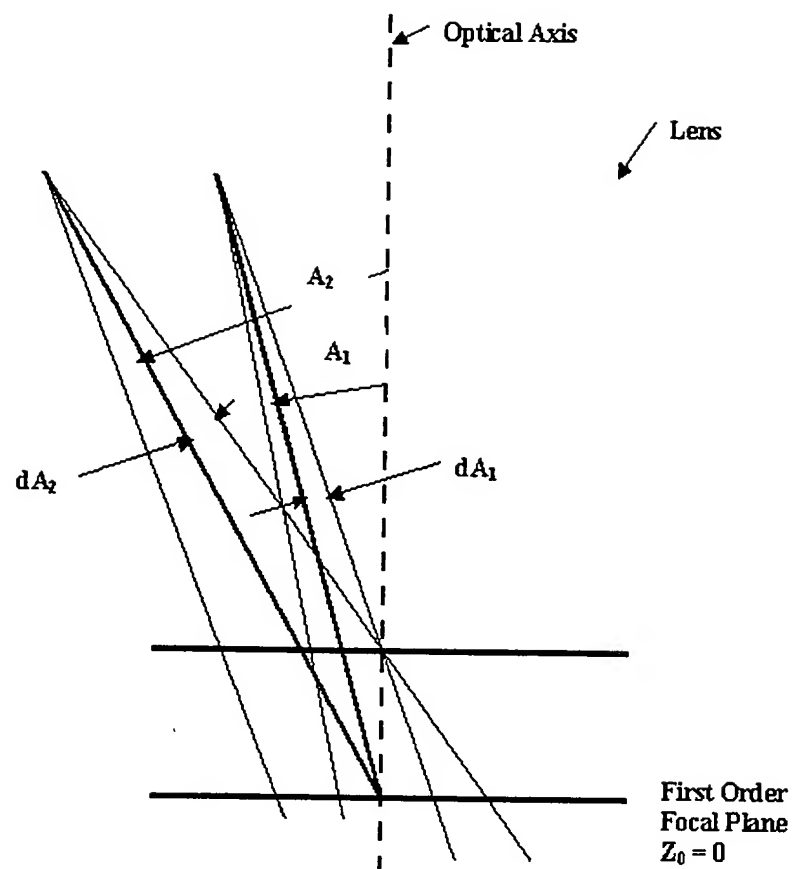


FIGURE 3

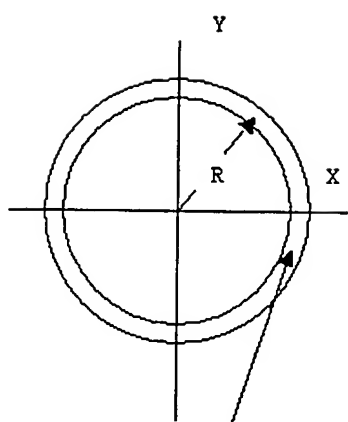


FIGURE 6A

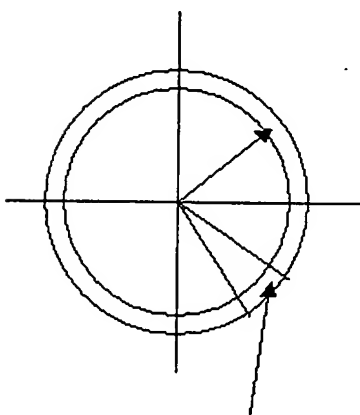


FIGURE 6B

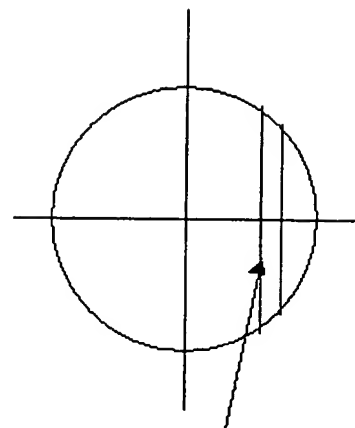


FIGURE 6C

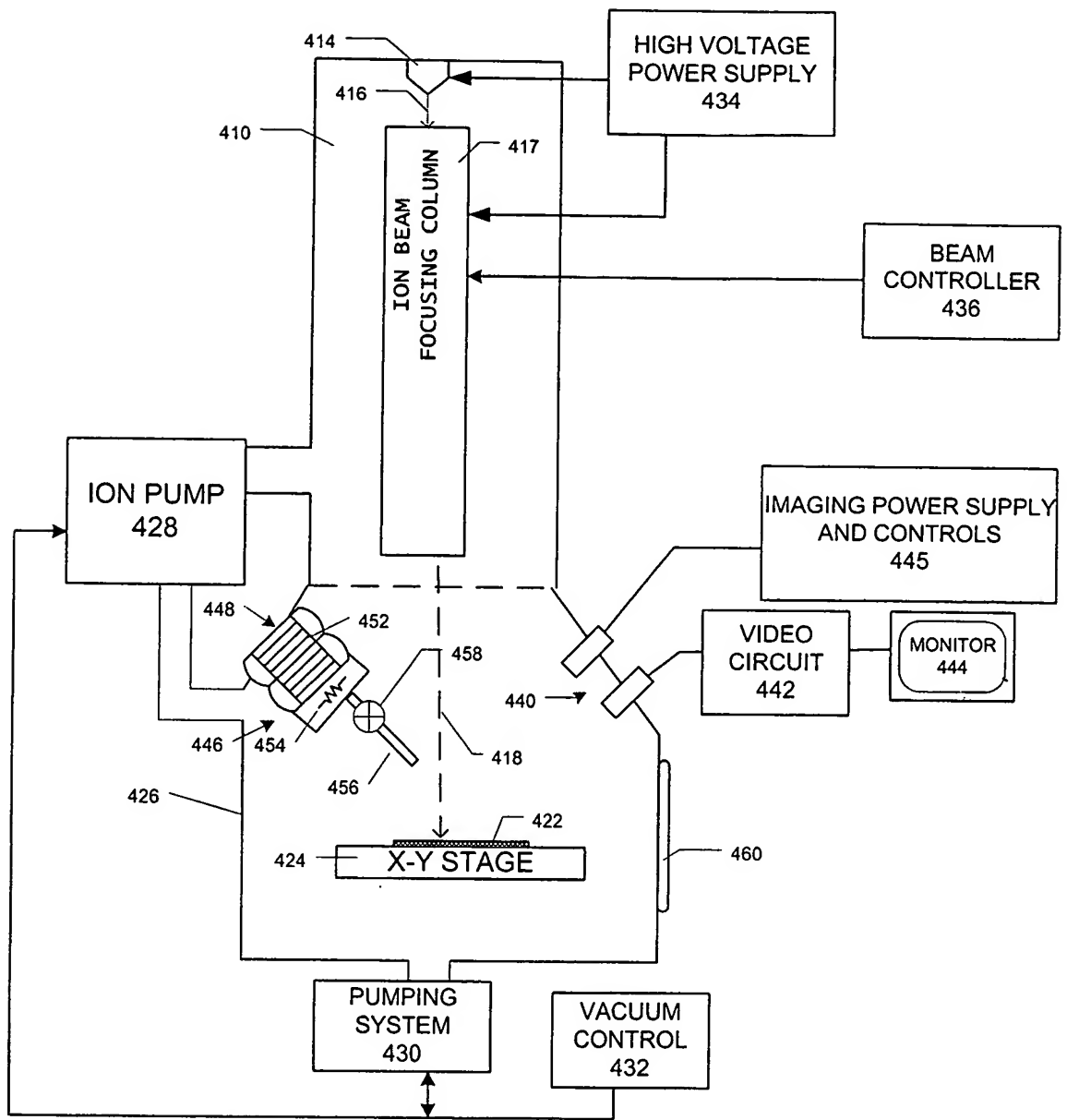


FIGURE 4

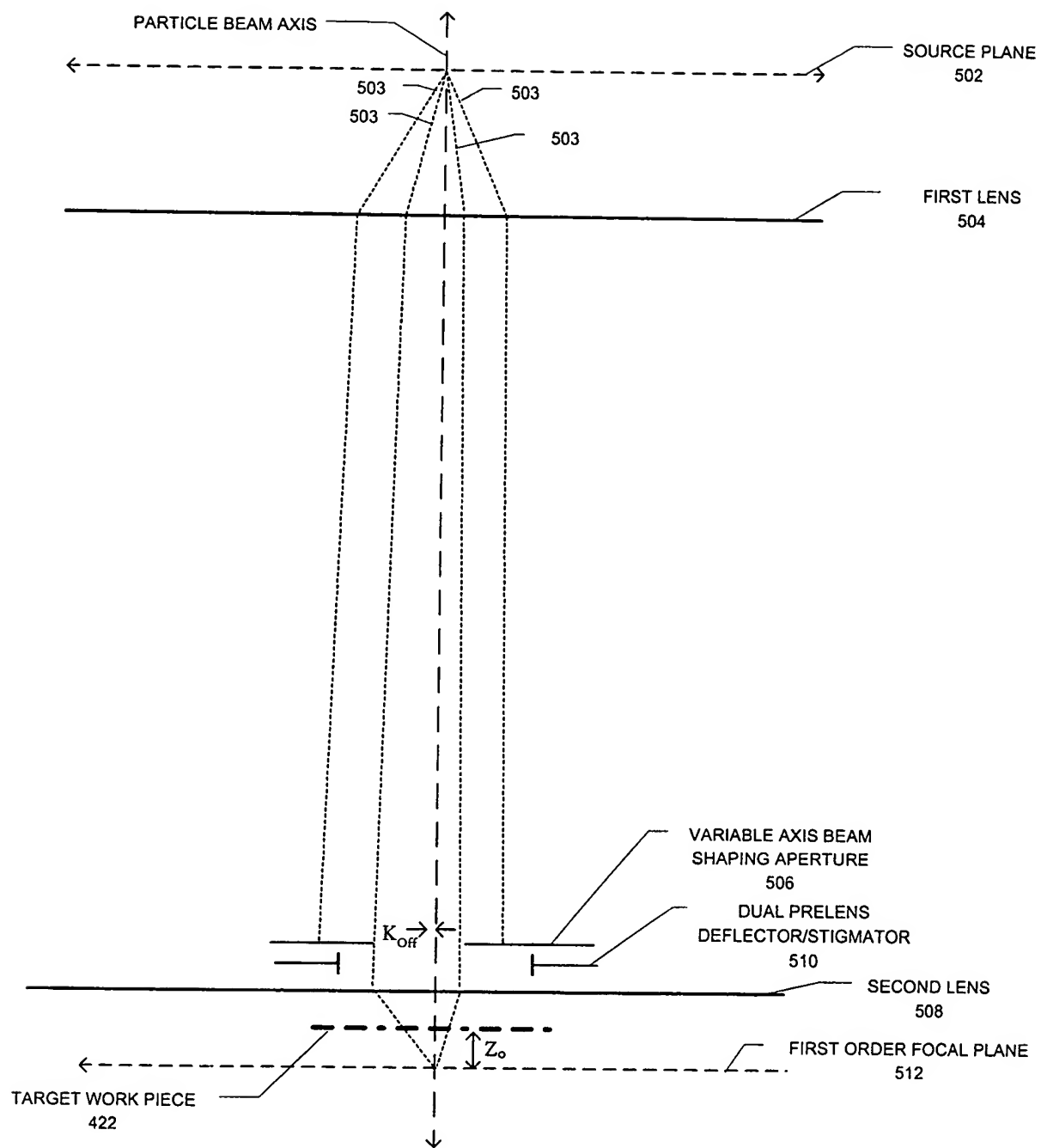


FIGURE 5

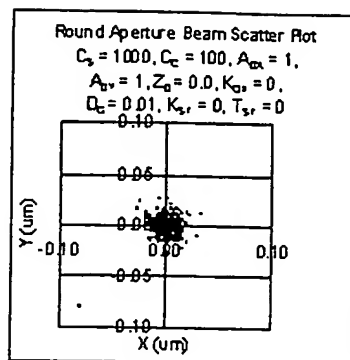


FIGURE 7A

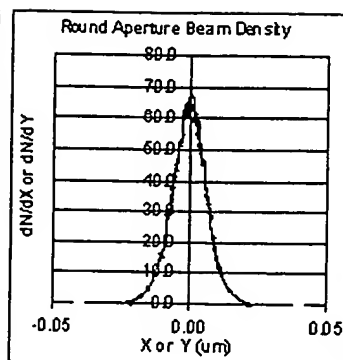


FIGURE 7B

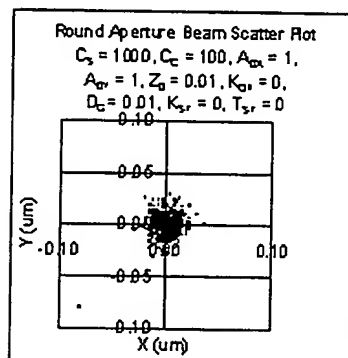


FIGURE 8A

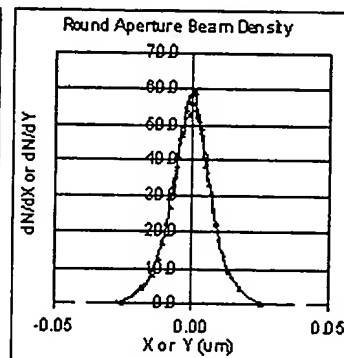


FIGURE 8B

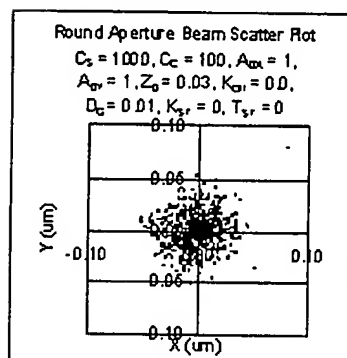


FIGURE 9A

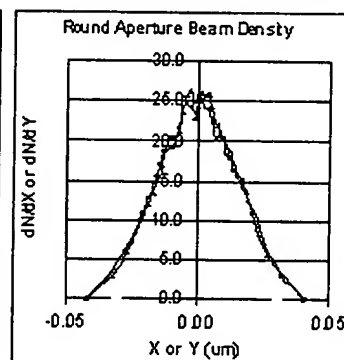


FIGURE 9B

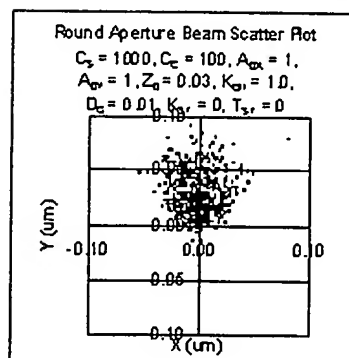


FIGURE 10A

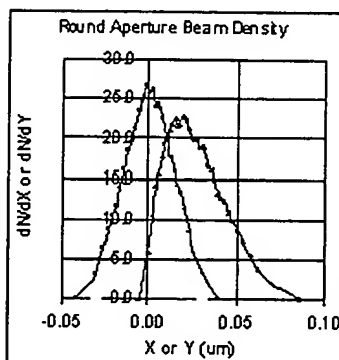


FIGURE 10B

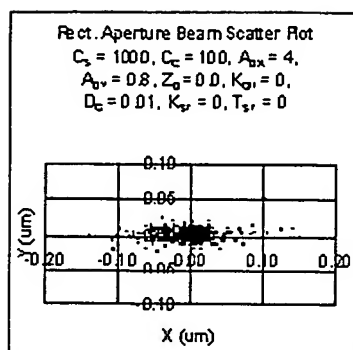


FIGURE 11A

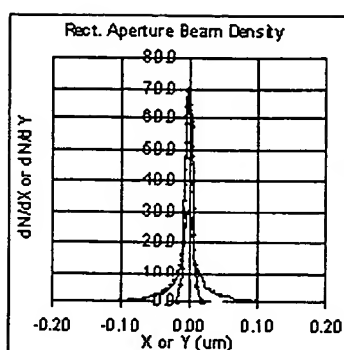


FIGURE 11B

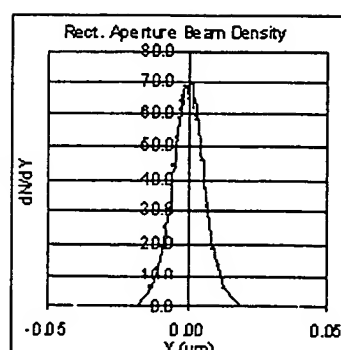


FIGURE 11C

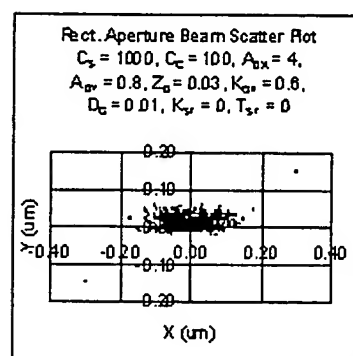


FIGURE 12A

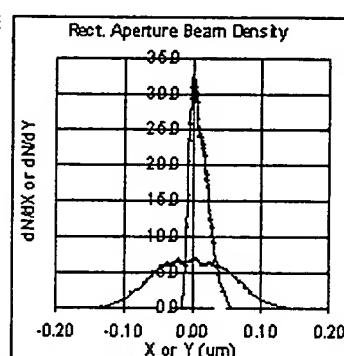


FIGURE 12B

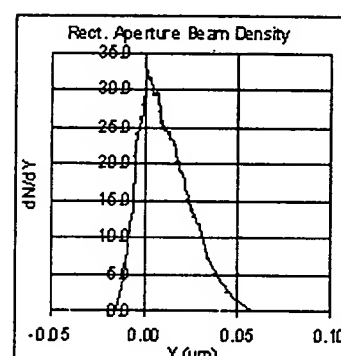


FIGURE 12C

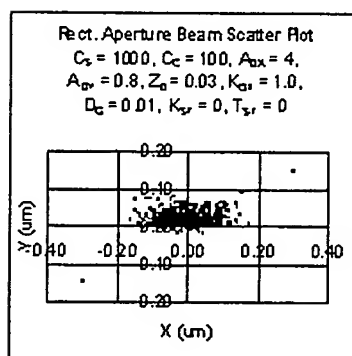


FIGURE 13A

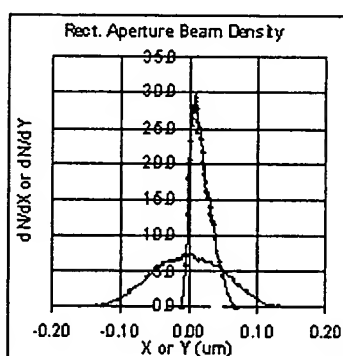


FIGURE 13B

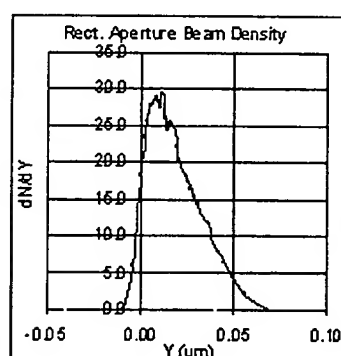


FIGURE 13C

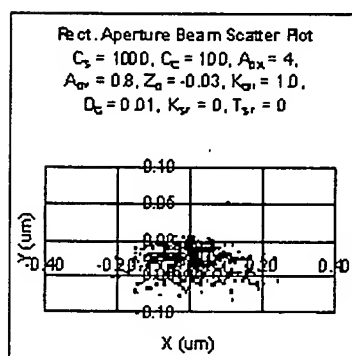


FIGURE 14A

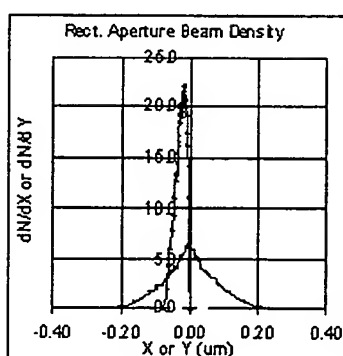


FIGURE 14B

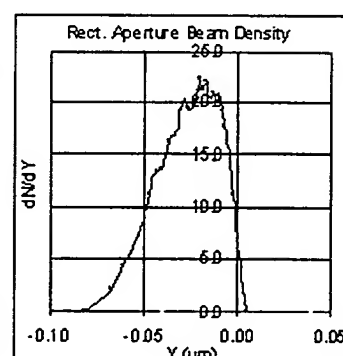


FIGURE 14C

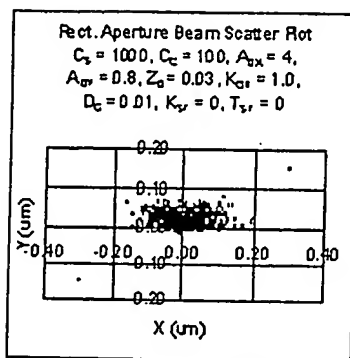


FIGURE 15A

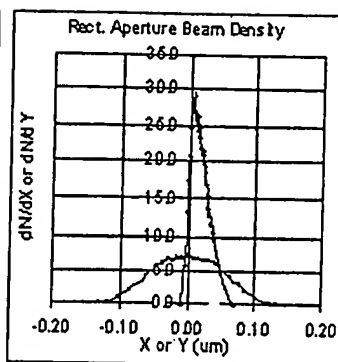


FIGURE 15B

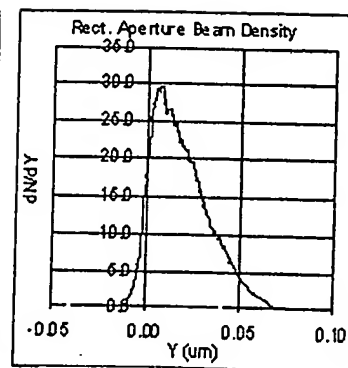


FIGURE 15C

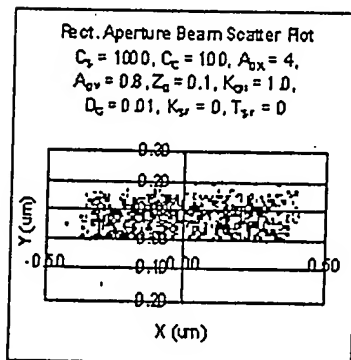


FIGURE 16A

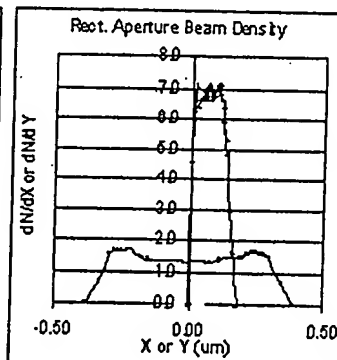


FIGURE 16B

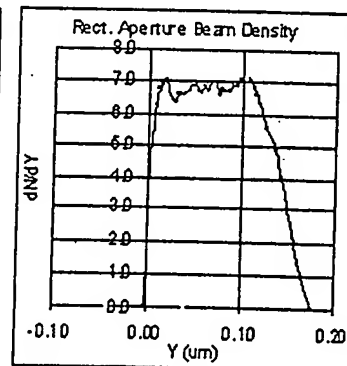


FIGURE 16C

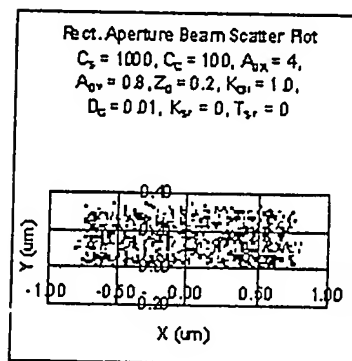


FIGURE 17A

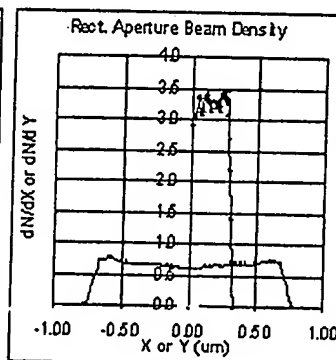


FIGURE 17B

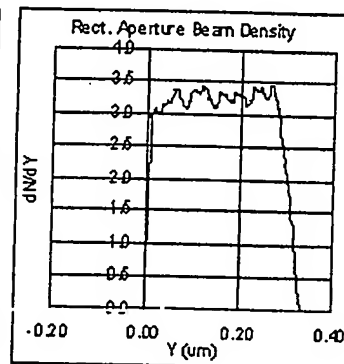


FIGURE 17C

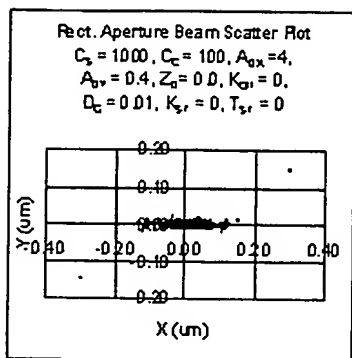


FIGURE 18A

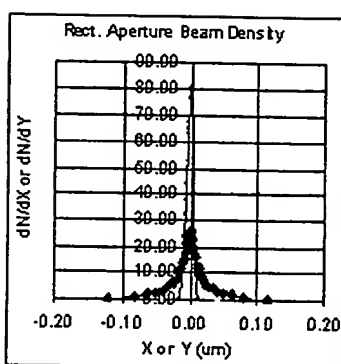


FIGURE 18B

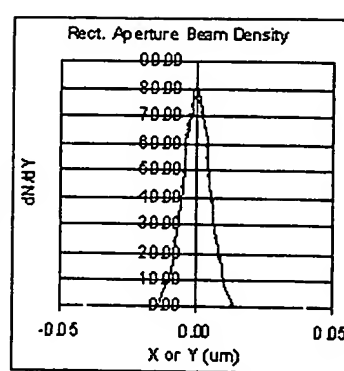


FIGURE 18C

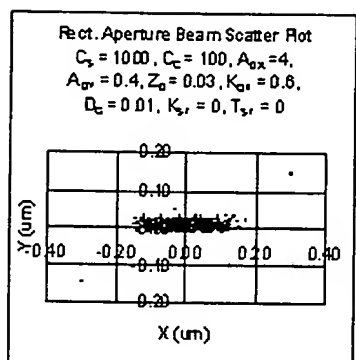


FIGURE 19A

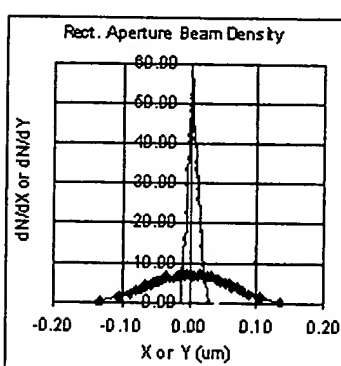


FIGURE 19B

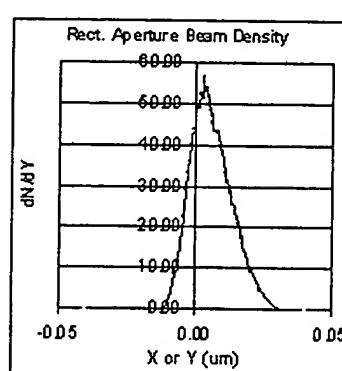


FIGURE 19C

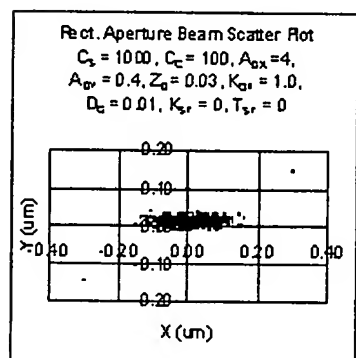


FIGURE 20A

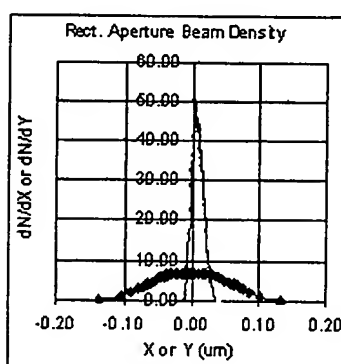


FIGURE 20B

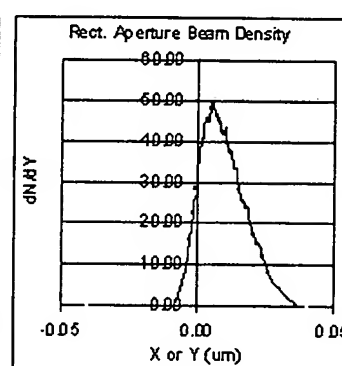


FIGURE 20C

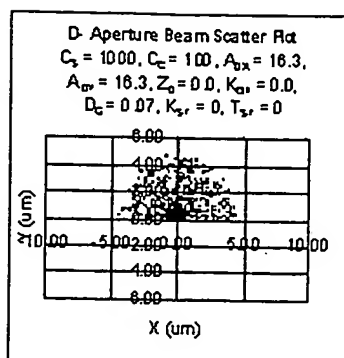


FIGURE 21A

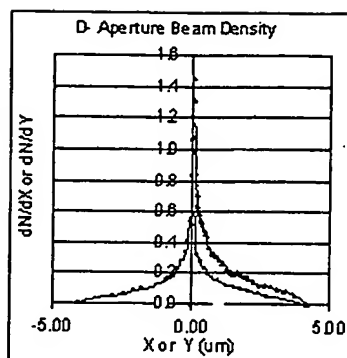


FIGURE 21B

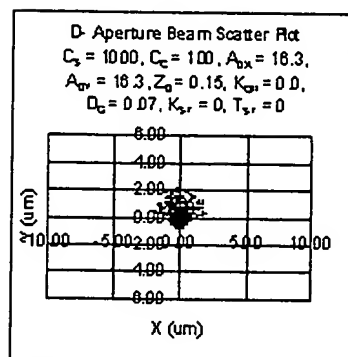


FIGURE 22A

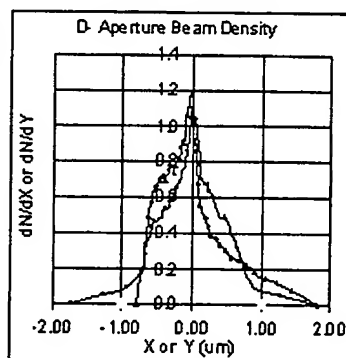


FIGURE 22B

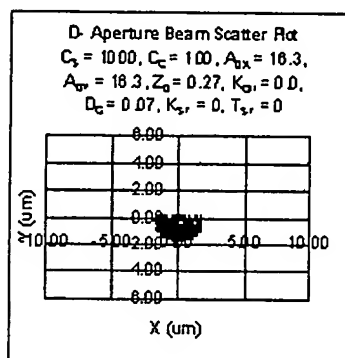


FIGURE 23A

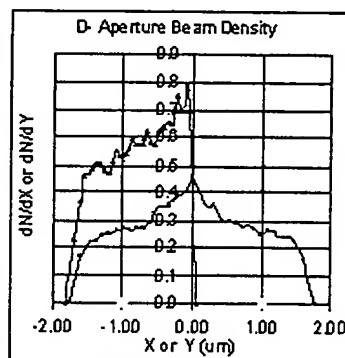


FIGURE 23B

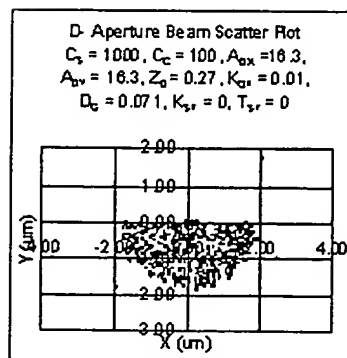


FIGURE 24A

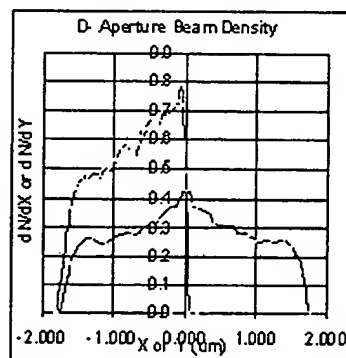


FIGURE 24B

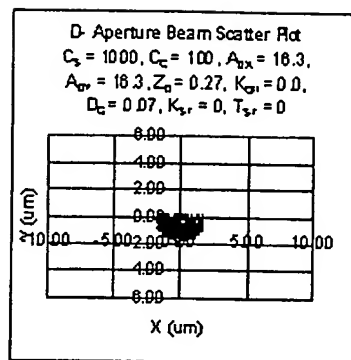


FIGURE 25A

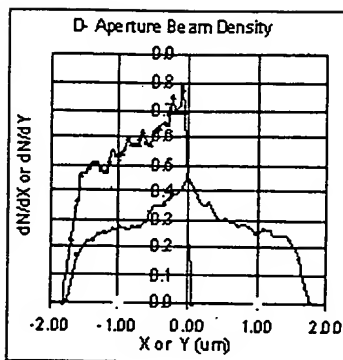


FIGURE 25B

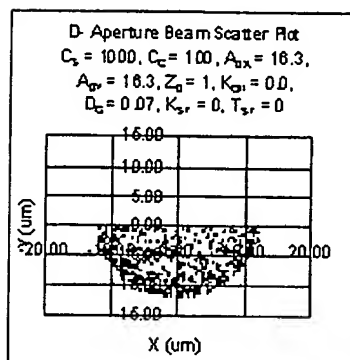


FIGURE 26A

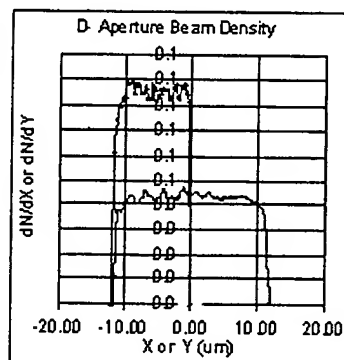


FIGURE 26B

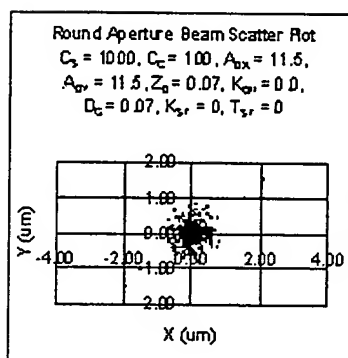


FIGURE 27A

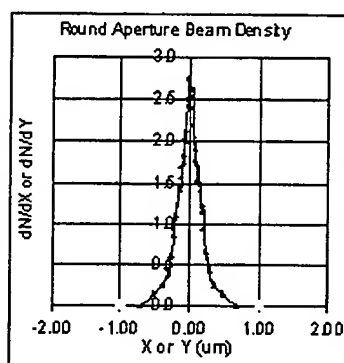


FIGURE 27B

Comparison of Round & D- Beam Densities
 both Having 50 nA Beam Current
 $C_s = 1000$, $C_c = 100$, $K_{cat} = 0$, $D_{GI} = 0.07$
 Round Aperture: Diamonds $A_0 = 11.5$, $Z_0 = 0.07$, $E = 1$
 D- Aperture: Triangles $A_0 = 16.3$, $Z_0 = 0.27$, $E = 4$

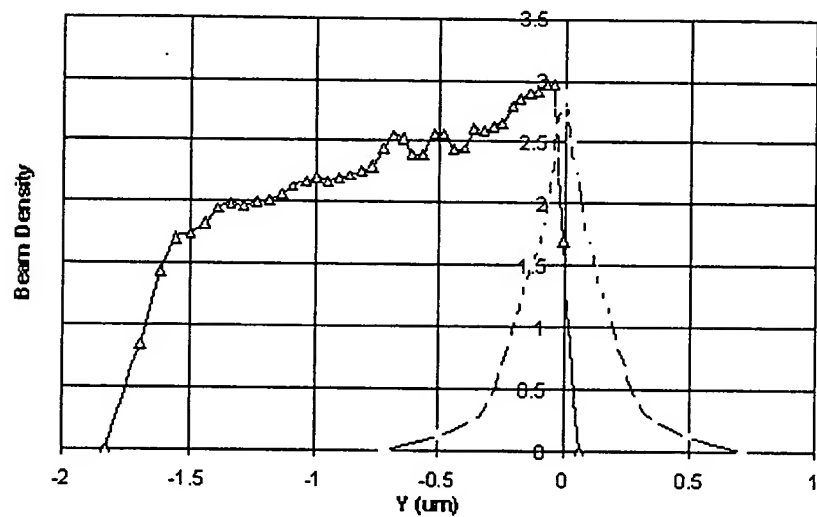


FIGURE 28

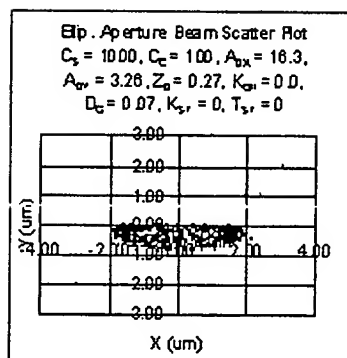


FIGURE 29A

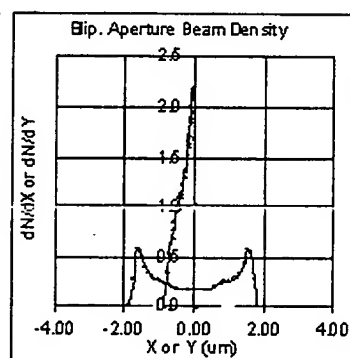


FIGURE 29B

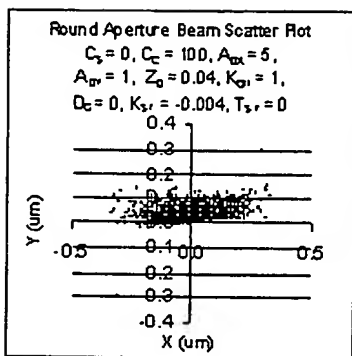


FIGURE 30A

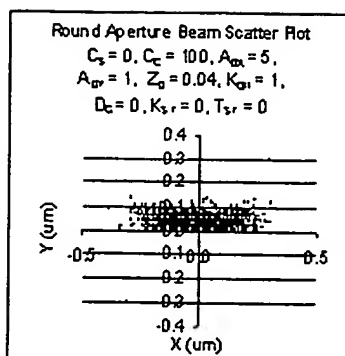


FIGURE 30B

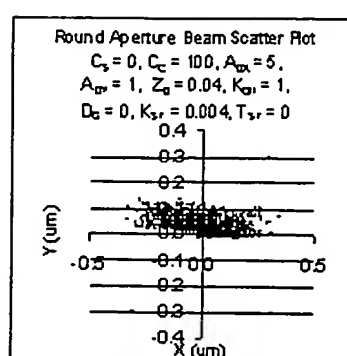


FIGURE 30C

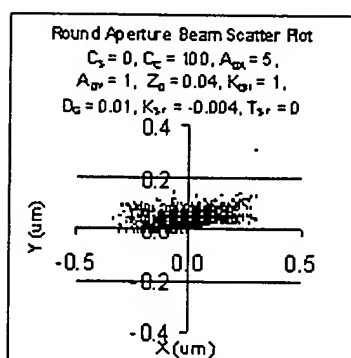


FIGURE 31A

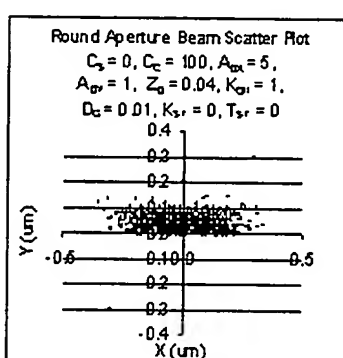


FIGURE 31B

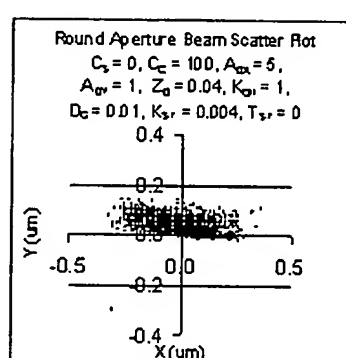


FIGURE 31C

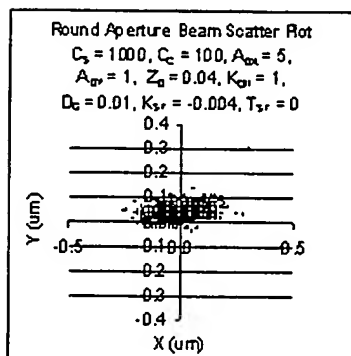


FIGURE 32A

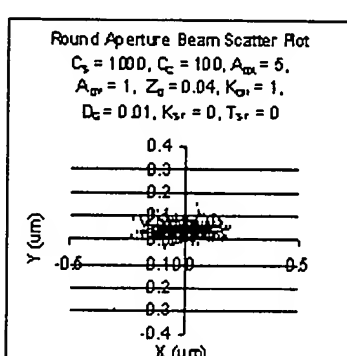


FIGURE 32B

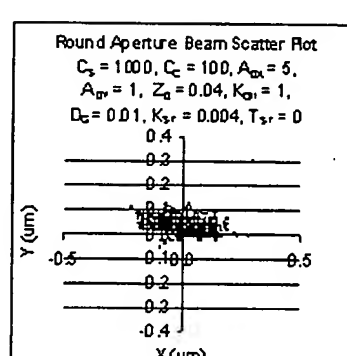


FIGURE 32C

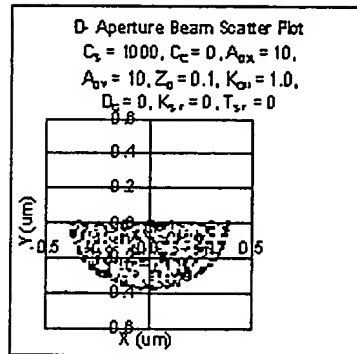


FIGURE 33A

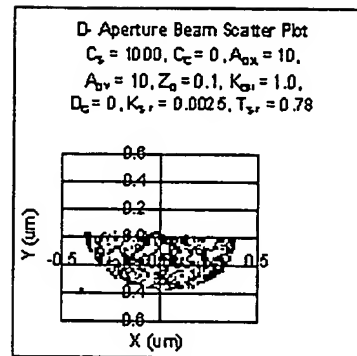


FIGURE 33B

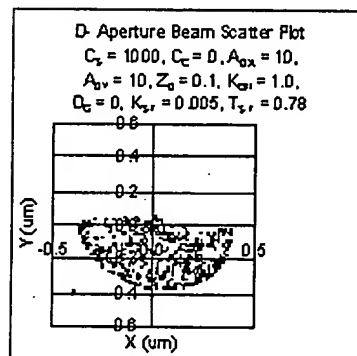


FIGURE 33C

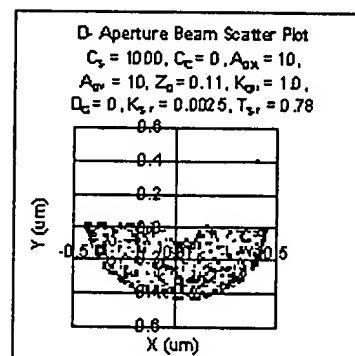


FIGURE 33D

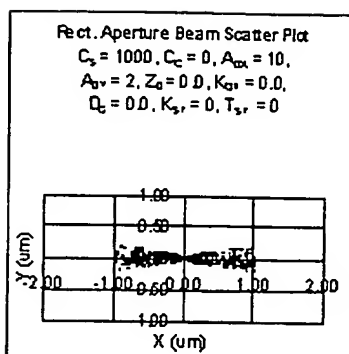


FIGURE 34A

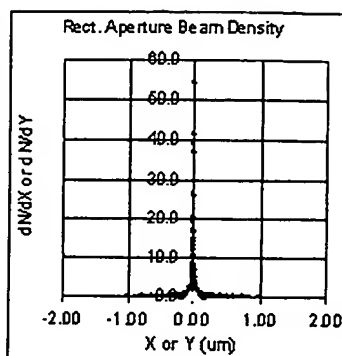


FIGURE 34B

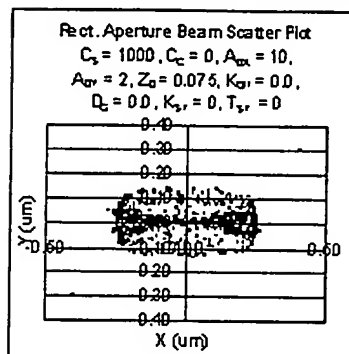


FIGURE 35A

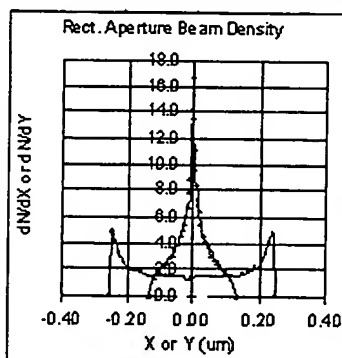


FIGURE 35B

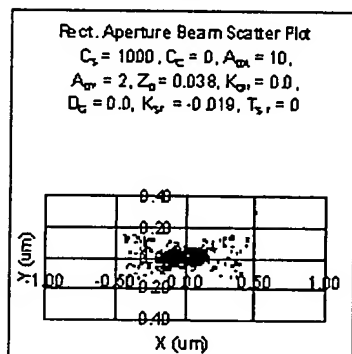


FIGURE 36A

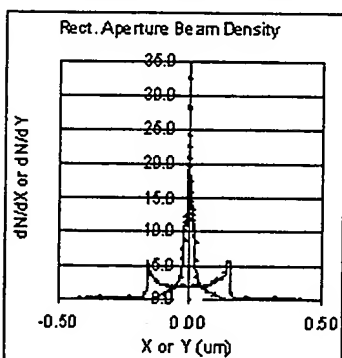


FIGURE 36B

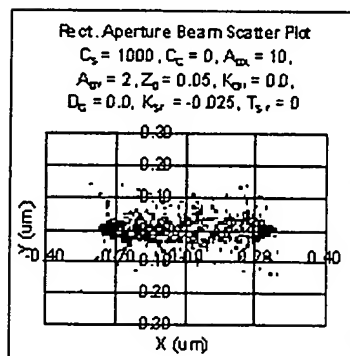


FIGURE 37A

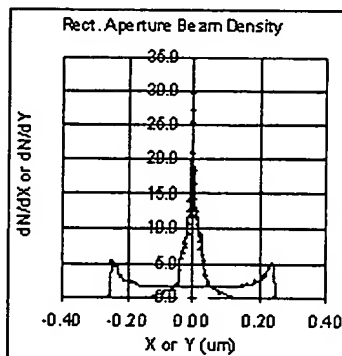


FIGURE 37B

Optical Parameters										Beam Width		15- 85% Rise	Y-Tail Initial Rise	
C _s (mm)	C _s (mm)	C _c (mm)	A _{0x} (rad)	A _{0y} (rad)	Z ₀ (mm)	K _{off}	D _G (μm)	K _{ST} (mm)	I _B (nA)	X _{tw} (μm)	Y _{tw} (μm)	dX (μm)	dY (μm)	Y-Tail Initial Rise (μm)
Small Beams														
Round	1000	100	1	1			.01		.0076	.052	.052	.010	.010	M
Round	1000	100	1	1	.03	1.0	.01		.0076	.083	.094	.022	.013	S
Rect.	1000	100	4	.8			.01		.031	.24	.044	.026	.009	M
Rect.	1000	100	4	.8	.03	1.0	.01		.031	.27	.080	.060	.006	S
50 nA Beams														
Round	1000	100	11.5	11.5	.07		.071		50	1.4	1.4	.26	.26	L
Round	1000	100	11.5	11.5	.07	.5	.071		50	2.9	4.0	.50	.24	VL
D	1000	100	16.3	16.3	.27		.071		50	3.5	1.8	.20	.068	S
Rect.	1000	100	22.7	4.54	.30		.071	-.10	50	6.4	2.3	.2	.60	M

FIGURE 38